which mean systolic pressure in IDH group is higer than which in groups of SDH and ISH (P<0.01). BMI, waist-to-hipratio (WHR) and mean serum urea acid in every subtype are all higer than which in control group (P<0.01). Mean fasting blood sugar (FBS) in groups of SDH and ISH are all higher than which in control group (P<0.01), no statistical significance of FBS between IDH group and control group (P>0.05). Mean of TC, TG, LDL-C and VLDL-C in every subtype are all higher than which in control group (P<0.01), mean HDLC is lower than which in control group (P<0.01), and mean of TG and VLDL-C in IDH group are all higer than which in groups of SDH and ISH (P<0.01).
Conclusions: The morbidity of the new diagnosed hypertension is 17.4 percent in our city in which male is higher than female, chief IDH of male and SDH of female. Mean FBS of IDH is lower than which in groups of SDH and ISH, and do not higher than control group. It is its characteristic of the mean of TG and VLDL-C are all higher than which in groups of SDH and ISH. To treat different subtypes of hypertension, we should not only take active antihypertensive treatment, but take various intervention studies, proper dietary structure and sport-related physical fitness. And blood glucose, lipid and weight should be control to prevent cardiovascular disease.

GW25-e4480

The risk factors analysis and follow-up study of prehypertensive diabetic patients

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Objectives: To analyze the prevalence and risk factors of prehypertension among normal blood pressure diabetic patients. To assess the renal function of pre-hypertensive diabetic patients. To compare the cumulative incidence of hypertension between prehypertension and normal blood pressure groups after 5 years followed up and analyze risk factors of it in prehypertensive diabetic patients.
Methods: A combination methods of retrospective and prospective analysis was applied to carried out the study. 3481 type 2 diabetes with normal blood pressure were selected as the research object and devided into the normal blood pressure and pre-hypertension groups according to th level of blood pressure. To analyze the prevalence, risk factors and renel damage of prehypertensive diabetic patients. These patients were followed up for five years and the cumulative incidence of hypertension were analyze. Risk factors for hypertension in prehypertensive diabetic patients were evaluated. Excel software was applied for databases and SPSS13.0 software was applied for statistical analysis.
Results: Among 3481 normal blood pressure patients with diabetes, 943 patients (27.1%) belong to the normal blood pressure group and 2538 patients (72.9%) belong to prehypertension group. 2855 cases (82.0%) were male and 626 cases (18.0%) were female. The range of their aged was from 22 to 91 years old and their average age was (57.4±10.6) years old. Results of single factor analysis showed that prevalence of prehypertension in male and female patients was 74.2% (2117/2 855) vs 67.3% (421/626), in snoring and not snoring patients was 74.8% (1577/2 108) vs 70.0% (961/1 373), in the smoking and nonsmoking patients was 74.4% (1727/2320) vs 69.9% (811/1 161). Their difference were significant. The TG level of normal blood pressure group and prehypertension group was 1.87±1.51 vs. 2.17±1.94 mmol/L. The LDL-C level of two groups was (2.36±0.89) vs. (2.64±1.10) mmol/L. The body mass index (BMI) levels was (24.62±3.27) vs. (25.53±3.23) kg/m^2. Their difference were significant (t=-4.697, -7.578, -7.313, P<0.01). Results of multiariable logistic regression analysis showed that factors including male, snoring, smoking, high levels of TG, LDL-C and BMI were associated with prehypertension. The prevalence of renal insufficiency in prehypertensive and normal blood pressure diabetic patients was 38.3% vs 33.5% and the difference was significant (X^2=6.761,P<0.05). The 5-years cumulative incidence of hypertension in prehypertensiveand normal blood pressure diabetic patients was 35.8% (885/2471) vs 22.0% (198/899) and the difference was significant (P<0.05).The cumulative incidence of hypertension in male and female prehypertensive diabetic patients was 36.7% vs 31.5% and that in overweight and not overweight prehypertensive diabetic patients was 39.4% vs 31.3%. Their difference were significant (P<0.05).
Conclusions: Male, snoring, smoking, high levels of TG, LDL-C and BMI were risk factors of prehypertensive diabetic patients. Prehypertension was a risk factor of renal insufficiency.for diabetic patients. The 5-years cumulative incidence of hypertension in the prehypertensive diabetic patients was higher than that in normal blood pressure diabetic patients. Male and overweight were risk factors of 5-years cumulative incidence of hypertension in prehypertensive diabetic patients.

GW25-e4490

Percutaneous transluminal angioplasty of renal artery fibromuscular dysplasia

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Objectives: To evaluate clinical characteristics, the effect of percutaneous transluminal renal artery angioplasty (PTRA) and clinical follow-up from patients of renovacular hypertension results from renal artery fibromuscular dysplasia (FMD).
Methods: Between Janurary 2009 and December 2013, 22 consecutive renal artery FMD patients (age 25±5yrs) underwent PTRA for poorly controlled hypertension. The patients were enrolled into this retrospective study after PTRA. Among them, all patients suffered hypertension and 9 presented resistant hypertension (40.9%), 15 presented secondary aldosteronism (68.1%), 2 presented intracranial abnormal vessels (9.1%). Office blood pressure, the serum creatinine level and glomerular filtration rate (GFR) with 99mTc-DTPA were measured before the procedure and at follow-up.
Results: The technical success rate for primary PTRA was 100% (22/22) and the complication rate was 4.5% (1/22). Balloon angioplasty was performed in 18 and stent implantation in 4. Hypertension was finally cured in 54.5% (12/22) of the patients and improved in 45.5% (10/22) during the mean follow-up period of 6-48 months (mean 25±13months). There was a cumulative 9.1% (2/22) restenosis rate during the follow-up period. Office blood pressure was reduced by 41±17/21±16mmHg after PTRA (from 163±22 to 122±15mmHg; P<0.001, and from 101±15 to 80±10 mmHg; P<0.001). While the serum creatine levels remained unchanged (75±25 vs 74±21umol/L, P=0.69), a significant increase in ^{99m}Tc-GFR levels of lesion kidney was observed in 8 patients after PTRA (25.2±4.8 vs 39.4±8.2 ml/min; P=0.001).
Conclusions: PTRA for clinically symptomatic renal FMD is technically and clinically successful and safe to perform.

GW25-e2317

Association study between NPPB gene polymorphisms and essential hypertension in Hainan Li-risk population

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Objectives: The aim was to investigate the association between NPPB gene and essential hypertension in Hainan Li - risk population.
Methods: Allele-specific PCR and direct sequencing in 107 cases of patients with essential hypertension of Li Nationality and 102 cases of healthy of Li Nationality, and RS198388 RS3753581 for NPPB gene polymorphisms were genotyped. Measurement data T test or analysis of variance test data, count data applications similarities and differences comparing the distribution of chi-square test to determine the relevance of the relationship between genotype NPPB gene RS3753581 and RS198388 with essential hypertension between genetic susceptibility, and gene genotyping performed Hardy-Weinberg equilibrium goodness of fit test.
Results: (1) hypertension group mean arterial pressure (MAP), creatinine (Cr) is higher than the normal control group, the difference was statistically significant (P <0.05), found no statistically significant difference in clinical indicators. (2) NN hypertension group NPPB gene RS3753581 polymorphic loci, NM, MM genotype frequency distributions were 89.7 %, 7.5 %, 2.8 % in the control group NN, NM, MM genotype frequency distributions were 98.0%, 1.0%, 1.0%, and the distribution of the differences were statistically significant (χ2=7.206, P=0.027 <0.05); experimental group NN hypertension group NPPB gene RS198388 polymorphic sites, NM, MM gene frequency distribution patterns were 73.8 %, 19.6 %, 6.5 % in the control group NN, NM, MM genotype frequency distributions were 70.6 %, 25.5 %, 3.9%, genotype distribution and allele frequencies were not significantly of statistical significance (χ2=1.556, P=0.459>0.05). (3) The genotype distribution in the experimental group and the control group were NPPB gene RS3753581 the Hardy-Weinberg equilibrium (P>0.05), a representative sample; genotype distribution RS198388 experimental group and the control group were in line with polymorphic loci Hardy-Weinberg equilibrium (P>0.05), the sample is representative. (4) 8 cases of hypertensive patients RS3753581 heterozygous polymorphic loci, and found four bases upstream mutation insert CC, resulting in a large number of peaks after heterozygous mutations, frame shift mutations.
Conclusions: (1) NPPB gene polymorphisms with RS3753581 risk of Hainan of Li Nationality essential hypertension correlated (P <0.05). (2) NPPB RS198388 gene polymorphisms with essential hypertension Hainan of Li Nationality risk no correlation (P> 0.05). (3) Genotypes RS3753581 and RS198388 NPPB gene polymorphism loci were the Hardy-Weinberg equilibrium (P> 0.05). (4) 8 cases of hypertensive patients RS3753581 heterozygous polymorphic loci, and found mutations upstream of the insertion of a new mutation.

GW25-e1103

Clinical risk factors and early onset of maternally inherited essential hypertension

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Objectives: This study aimed to investigate the age at onset of maternally inherited essential hypertension (MIEH) and relative risk factors for MIEH.
Methods: Two hypertensive pedigrees [pedigree A (n=104) and pedigree B (n=19)] and sporadic hypertensive patients (n=154) with the characteristics of MIEH were recruited. Their demographic and clinical features were collected. The age at the onset of hypertension, as well as the hypertension related environmental and clinical risk factors were compared among the MIEH (n=36), non-MIEH (n=118) patients and normotensive controls (n=36).
Results: The age at the onset of hypertension in MIEH pedigree patients was decreasing by generation [For pedigree A: 62.0±6.2 years old in generation II (n=4), 46.3±5.8 in generation III (n=6), 23.3±2.9 in generation IV (n=4); For pedigree B: 58.0 in generation I (n=1), 48.3±7.6 in generation II (n=3), 37.5±0.7 in generation III (n=2)]. Among sporadic hypertensive patients, the average age at the onset of hypertension in MIEH patients was significantly lower than the patients with non-MIEH (47.8±10.3 vs. 58.2±11.4 years old, P<0.01). Significant difference could also be found between sporadic MIEH patients and normotensive controls for the hypertension related environmental and clinical risk factors, including body mass index

(27.2±9.2 vs 20.9±8.2 kg/m^2, P<0.05), waist to hip ratio (0.89±0.05 vs 0.68±0.34, P<0.05), alcohol intake (22.22% vs 2.78%, P<0.05) and creatinine level (58.65±11.16 vs 47.83±5.65μmol/l, P<0.01).
Conclusions: A progressively early onset of hypertension by generation could be observed in MIEH pedigree patients. Hereditary factors on the top of environmental and clinical risk factors of hypertension may attribute to the early onset of MIEH.

GW25-e3417

The relationship between carotid-femoral pulse wave velocity and severity of coronary artery disease

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Objectives: To evaluate the value of carotid-femoral pulse wave velocity (cfPWV) for predicting severity of coronary artery disease measured as SYNTAX score.
Methods: Three hundred and nineteen patients who underwent primary angiography as well as cfPWV measurements were enrolled. SYNTAX scores were assessed according to the angiographic results. Patients were divided to control group (no ≥50% stenosis in coronary artery), low SYNTAX score (1-17.5) group, and high SYNTAX score (18-72) group. Ordinal logistic regression analysis was used to evaluate the association between cfPWV and SYNTAX score. ROC was used to assess the accuracy of cfPWV to predict SYNTAX score.
Results: After adjusting for age, sex, obesity, smoking, family history of cardiovascular diseases, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, ankle-brachial index (ABI), hypertension, hyperlipemia, and diabetes, cfPWV was associated with the SYNTAX score (odds ratio=1.24, P=0.006). cfPWV showed relatively high accuracy to predict SYNTAX score ≥33 (area under ROC=0.703).
Conclusions: Aortic stiffness measured as cfPWV is associated with SYNTAX score, which shows clinical value for predicting the severity of coronary atherosclerosis.

GW25-e4118

The Relationship between Folic acid, Vitamin B12, Blood Pressure Variability and the Degree of Cysteine

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Objectives: To investigate the relationship between folic acid,vitamin B12,24-hour ambulatory blood pressure variability and cysteine.
Methods: 60 patients (36 males and 24 females) who suffered from high blood pressure were recruited. Clinical characteristics were recorded, the value of folic acid,vitamin B12 and cysteine were measured. According to the level of cysteine, 60 patients were divided into high cysteine group (Hcy>15.4 ummo/L) and low cysteine group (Hcy<15.4 ummol/L).Meanwhile we observed the patients' blood pressure for 24 hours and got the index of blood pressure variability, which was indicated by 24-hour systolic blood pressure, diastolic blood pressure, and the average pressure standard derivation etc. SPSS software was used to analyze the relationship of above indexes.
Results: (1) The test showed that the difference of folic acid and vitamin B12 level between high cysteine group and low cysteine group was statistically significant (P=0.01 and P=0.0001 respectively). So it was the standard derivation of the 24-hour systolic blood pressure, the daytime systolic blood pressure, the daytime diastolic blood pressure, the nighttime diastolic blood pressure, the 24-hour average pressure (P=0.041, P=0.032, P=0.01, P=0.016 and P=0.006 respectively). (2) According to the results of Logistic regression analysis, the degree of cysteine was associated with that of folic acid, vitamin B12, coronary heart disease, and the standard derivation of the the 24- hour systolic blood pressure, the daytime systolic blood pressure, the nighttime systolic blood pressure, the nighttime average pressure (P=0.034, P=0.005, P=0.045, P=0.014, P=0.026, P=0.012 and P=0.041, respectively).
Conclusions: (1) There was a negative correlation between the degree of folic acid and vitamin B12 and that of cysteine.(2) There was a positive correlation between the degree of cysteine and the standard derivation of the 24-hour systolic blood pressure, the daytime systolic blood pressure, the nighttime systolic blood pressure, the nighttime average pressure. (3) Coronary heart disease was correlated with the degree of cysteine.

GW25-e2460

Correlationship of Vascular Disease with Plasma Levels of esRAGE and PTX3 in Elderly Hypertensive Patients

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Objectives: To investigate the association between pentraxin-3 (PTX3), endogenous secretory advanced glycation end products receptor (esRAGE) levels and arterial elasticity in elderly hypertensive patients.
Methods: The elderly hypertensive patients who hospitalized at the PLA 252 Hospital from July 2013 to January 2014 were divided into hypertension group, hypertensive heart disease group and control group. Hypertension group was divided into simple hypertension group, hypertension +coronary heart disease (CHD) group, hypertension +diabetes group, hypertension+CHD+diabetes group. Plasma PTX3 and esRAGE levels were determined by enzyme linked immunosorbent assay (ELISA). Brachia-ankle pulse wave velocity (BA-PWV) and ankle brachial index (ABI) were measured using a volume plethysmographic apparatus. Mean arterial pressure, pulse pressure, age, sex, PTX3, esRAGE, blood lipid and blood glucose were measured in all patients.
Results: (1) Plasma PTX3 concentration was significantly higher in hypertensive heart disease group than that in simple hypertension group and control group, while no statistically significant difference between simple hypertension group and control group. PTX3 in hypertension+CHD+diabetes group was markedly higher than simple hypertension group and hypertension+CHD group ($P<0.05$). (2) Plasma esRAGE in hypertensive heart disease group was significantly lower than simple hypertension group and control group ($P<0.05$). Plasma esRAGE was significantly lower in simple hypertension group compared to control group ($P<0.05$). (3) PWV was markedly higher in simple hypertension group than control group, while ABI was significantly lower ($P<0.05$). PWV and ABI were significantly different in hypertensive heart disease compared with that in simple hypertension group ($P<0.05$). There was significant difference between PWV and ABI in hypertension grade 1 and 2 ($P<0.05$), while no significant difference between PWV and ABI in hypertension grade 2 and 3. The levels of PWV in the group of blood pressure not achieved the target goal were higher than the group of blood pressure achieved the target goal and control group ($P<0.05$). PWV in simple hypertension group was markedly lower than hypertension +diabetes group and hypertension+ CHD +diabetes group, while ABI was significantly higher ($P<0.05$). (4) Relevant analysis revealed correlation with PWV and ABI for mean arterial pressure, pulse pressure, age, sex, PTX3, esRAGE, blood lipid, blood glucose.
Conclusions: Artery structure and function experienced markedly changes in elderly hypertensive patients, and metabolic risk factors made it worse. PTX3 and esRAGE play pivotal roles in the development of atherosclerosis in elderly hypertensive patients. They may serve as sensitive predictors for the change of cardiovascular morphology and hypertension target organ damage.

GW25-e0059

The relationship between abnormal orthostatic blood pressure changes with arterial stiffness and transient heart rate change

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Objectives: To elucidate the mechanisms of orthostatic hypotention (OH) and orthostatic hypertension (OHT).
Methods: The data were collected in 1010 participants who attend the general health examination in a Community Health Center. The data includes the general clinical information (e.g. sex, age, smoking status, physical activity, alcohol consumption levels),two arterial stiffness indicators: baPWV (brachial-ankle pulse wave velocity) and AI (augmentation index), as well as simultaneously measured blood pressure change and heart rate change when the participants made body movement from supine position to orthostatic position.
Results: According to the postural blood pressure changes, all the participants were divided into three groups including orthostatic normotension (ONT), OH and OHT groups. Compared to the ONT group, subjects in OH group were older and had higher values of systolic blood pressure (SBP), branchial-ankle pulse wave velocity (baPWV) and augmentation index (AI), but there were no difference in other traditional cardiovascular risk factors between the two groups. Otherwise, all the parameters did not differ between OHT and ONT group. Logistic regression analysis revealed that both baPWV (β=1.189, 95% CI 1.115-1.268) and AI (β=1.028, 95% CI 1.002-1.056) were independent risk factors for OH (Hosmer&Lemeshow test: P=0.601). Significant heart rate increase only played a role in DBP elevated when standing.
Conclusions: Arterial stiffness measurements such as baPWV and AI are independently risk factors for OH better than age and SBP. There is not any relationship between arterial stiffness and OHT while heart rate change, or said, sympathetic tone, is mainly responsible for DBP changes when standing.

GW25-e0067

Visit-to-visit variability of systolic blood pressure correlated with arterial stiffness in pre-hypertension

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Objectives: The aim of this study was to investigate the relationship between the visit-to-visit variability of systolic blood pressure (SBP) and arterial stiffness identified in patients with pre-hypertension.
Methods: Two hundred and forty-nine pre-hypertensive subjects were randomized into 4 groups (telmisartan, indapamide, compound hypoensive table and placebo) and received 3-year follow-up with 13 scheduled study visits. The coefficient of variation (CV) of BP was measured. Arterial stiffness was evaluated at baseline and the end of study by using carotid-radial pulse wave velocity (crPWV) and aortic augmentation index at heart rate of 75 bpm (Aix@75).
Results: Decling amplitude of crPWV was negatively correlated with CV of SBP (r=-0.578, P<0.001) and positively correlated with delta SBP (r=0.241, P<0.001). Decling amplitude of Aix@75 was negatively correlated with CV of SBP (r=-0.558, P<0.001) and positively correlation with delta SBP (r=0.203, P<0.001). After 3-year intervention, CV of SBP, crPWV and Aix@75 were significantly decreased in telmisartan, indapamide and compound hypoensive groups compared with placebo